

XXV. *Pseudacraea eurytus hobleyi*, Neave, its forms and its models on Bugalla Island, Lake Victoria, with other members of the same combination. By G. D. HALE CARPENTER, D.M., Oxon., Member of the Royal Society's Sleeping-sickness Commission.

[Read November 5th, 1913.]

PLATES XXXIV-XXXVI.

THE following is a complete account of all the forms of *Pseudacraea eurytus hobleyi*, their *Planema* models, and other mimics in the same group, which I caught on Bugalla Island in 1912 and January-February, 1913. I wish, firstly, to express my indebtedness to Prof. Poulton for the great help he has given me in the preparation of this paper, especially in the preparation of the plates, the arrangement of which is entirely due to him. It seemed best to publish the results in tabular form, in spite of the greater bulk of such a paper, because by such means a graphic representation of the numerical differences between models and mimics is brought home to the reader as he sees the long array of blank spaces under the headings of the models.

I have taken the opportunity of figuring, on Plate XXXIV, some of the most interesting transitional forms of *Ps. eurytus hobleyi* from Bugalla Island, and of showing the close relationship of a single female (fig. 11) to a typical West African female of *eurytus*, L., from the Lagos district, represented in fig. 12, with its model *Planema epaea*, Cram., in fig. 13.

On Plate XXXV I have figured three of the most interesting of the families of *Ps. eurytus hobleyi* bred from known female parents captured on Bugalla Island. An account of two of the families, B and E (figs. 1-8), together with other synepigonic groups from the same locality, has already been published in these Transactions (1912, pp. 706-16). The third family, J (figs. 9-16), is recorded in Proc. Ent. Soc. 1913, pp. ix-xi. These breeding experiments conclusively prove that all the forms of *eurytus hobleyi* tabulated in the present paper form a single interbreeding community.

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Plate XXXVI represents, in figs. 14-17, some of the intermediate forms of *eurytus hobleyi* captured by me in Damba Island (1911)—a part of the series of which nearly the whole was described by Prof. Poulton in our Proceedings (1911, pp. xci-v; 1912, pp. xix-xxiii). Figs. 1-7 represent typical *Planema* models, and figs. 8-13, typical *Pseudacraea* mimics captured by Mr. C. A. Wiggins, D.P.M.O. of the Uganda Protectorate—fair examples of his great collection of these forms of which a part is published in "I. Congr. Internat. d'Ent.," 1910, vol. ii, p. 483. Fig. 10 represents the male-like female, *poggeoides*, of *Ps. eurytus hobleyi*, rare on Bugalla and Damba, even rarer near Entebbe, but common to the E. of the Nile, where *Pl. poggei* is found, but *Pl. macarista* absent (Proceedings, 1912, pp. lxx-lxxi). Plate XXXVI illustrates the intermediate forms of *Pseudacraea* that are relatively common on Damba as compared with the mainland—those intermediates that will be here shown by a much larger mass of evidence to be also characteristic of Bugalla. In correspondence with this resemblance between the *Pseudacraea* mimics of the two islands, Prof. Poulton has shown (*l. c.*) that the *Planema* models are relatively rare on Damba, and they are shown in the following tabular statement to be relatively rare on Bugalla. It must furthermore be borne in mind that the 127 Bugalla *Planemas* include 75 *epaea paragea*, and that special reasons for this large proportion are given later (p. 611). Mr. C. A. Wiggins' collection, between May 23 and Aug. 31, 1909, is analysed in our Proceedings, 1912, p. xciii, where it is shown that 244 *Planemas* and 82 forms of *eurytus hobleyi* were taken. What a contrast to the respective figures—127 and 356—for Bugalla!

In the tabular statement on p. 608 the numerical relations between the various *Planema* models and their mimics on Bugalla can be seen at a glance.

There were also taken during this period 17 *Mimacraea poultoni*, Neave, of which one specimen might be considered to be an outlying member of Combination IB, as it had the orange of the hind-wings replaced by white. There was considerable variation amongst these *Mimacraeas*: one being of a paler yellow was a beautiful mimic of *Acraea viviana*, Staud. In the locality where the mimetic *Lycanids* were taken, the model for the normal form of *poultoni* appeared to be *Acraea alicia*, E. M. Sharpe.

Combination	Models.		Forms of <i>Pseudacraea eurytus hobleyi</i> , Neave.	Other Mimics.
Ia.	<i>Planema poggei nelsoni</i> , Grose-Smith. ♂ ♀	2 0	♀ form mimetica <i>poggeoides</i> , Poulton (♀ <i>hobleyi</i> with ♂ coloration)	<i>Ps. kuenovi hypoxantha</i> , Jord. ♂ <i>Papilio dardanus</i> , Brown. ♀ ♀ f. m. <i>planemoides</i> , Trimen. 1
Ib.	<i>Planema macarista</i> , E. M. Sharpe. ♂	10	♂ f. m. <i>hobleyi</i>	<i>Acraea alciope</i> , Hew. 11 ♀ f. m. <i>aurivillii</i> , Staud. ♀ f. m. <i>alicia</i> , Grose-Smith., approaching typical western form (1) Non-mimetic ♂ (5) <i>Precis ranana</i> , Grose-Smith. ♀ 23 Non-mimetic ♂ (24)
II.	<i>Planema macarista</i> ♀ <i>Planema alcinoe camerunica</i> , Auriv. ♀ Not mimicked ♂	7 2 (8)	♀ f. m. <i>tirikensis</i> , Neave.	<i>Acraea jodutta</i> , F. 3 ♀ f. m. <i>jodutta</i> , F. (3) Non-mimetic ♂
III.	<i>Planema epaea paraqea</i> , Grose-Smith. ♂ ♀	41 34	Forms transitional between ♂ <i>hobleyi</i> , ♀ <i>tirikensis</i> and ♂ ♀ <i>obscura</i> , Neave. f. m. <i>obscura</i> .	<i>Papilio cynorta</i> , F. 0 ♀ f. m. <i>peculiaris</i> , Neave. ♂ (1) Non-mimetic
IV.	<i>Planema tellus eumelis</i> , Jord. ( <i>platyzantha</i> , Jord.) ♂ ♀	24 9	Forms transitional between ♂ ♀ <i>obscura</i> and ♂ ♀ <i>terra</i> , Neave. f. m. <i>terra</i>	<i>Acraea jodutta</i> , 6 ♀ f. m. <i>dorotheae</i> , E. M. Sharpe
Total Planemas		127	Total <i>Ps. eurytus</i> . . . . .	356

## COMBINATION IA.

The model, *Planema poggei nelsoni* (Plate XXXVI, figs. 3, 4), was the scarcest of all the Planemas on Bugalla Island: I only succeeded in taking 2 males and no females during the 14 months I was there.

Its chief mimic, *Pseudacraea kuenowi hypoxantha*, was not so uncommon, 3 males and 6 females having been taken. This fine *Pseudacraea* seemed to vary very little indeed: a marked contrast to the protean *Ps. eurytus hobleyi*. I found it quite easy to distinguish the living *kuenowi* from the ♂ *hobleyi*: its flight is very much bolder, it seems even more alert, with brisker movements; and when seen on the flowers of bushes which it frequents, it appears to carry the wings in a slightly different manner. I have never been deceived by its likeness to the model as in the case of *hobleyi*.

Two females of *eurytus hobleyi* fall into this combination. They belong to the form *poggeoides* (Plate XXXVI, fig. 10), with a yellow band across the fore-wing. This is not quite of the same tint as the orange band of the male, and corresponds with the band of *poggei* rather than of the ♂ *macarista*.

A single specimen of the *planemoides* female of *Pap. dardanus* was obtained. It is worth noting that, although I had been collecting for two years before I came across this interesting butterfly, I was completely deceived by it. It was flying slowly in front of me in an open space in the forest belt, and my first thought was "What an enormous *Planema*!", so much did its general appearance and flight resemble its model. When captured, it lay perfectly still in the net, as does its model, instead of fluttering wildly like so many Papilios. This specimen is of particular interest, for from ova obtained from it I was able to rear the family exhibited at a meeting of the society (Proceedings, 1913, p. liii) and figured on Plate XXXIX of the present volume. It is worth mentioning that I only collected one other *dardanus* female on Bugalla—of the form *hippocoön*, F.

## COMBINATION IB.

Of the model, the male *Pl. macarista* (Plate XXXVI, fig. 2), 10 were taken.

Acraeine mimics are represented by the female of *Acraea alciope*—synaposematic with the male *macarista*:

though many of these females have such a broad brownish border to the white band on the hind-wing that they are to some extent intermediate between the typical eastern Uganda ♀ form *aurivillii*, and the typical western female. Of the 17 *alciope* which were taken 5 were males, 11 were of the eastern form of female (*aurivillii*), and one transitional towards the typical western form, which closely resembles the male *Pl. alcinoe* mentioned below. The single transitional ♀ resembled this model so closely that I was quite deceived by it even after I had seen the specimens in the cabinet. The male *Acraea alciope* stands by itself, and does not mimic anything in either E. or W. Africa. The scarcity of this species on Bugalla Island is remarkable—and probably due to scarcity of its food-plant, which I never saw there. On another island, where I was previously (Damba), the food-plant was abundant, and *alciope* was extremely common.

The *Pseudacraea* mimic is the male of the mimetic form *hobleyi*, of *Ps. eurytus hobleyi* (Plate XXXV, fig. 12; XXXVI, fig. 9). This mimic is abundant on Bugalla, 28 having been captured. The resemblance is so close that I was often deceived until I had learnt to distinguish them.

Another Nymphaline member of this combination is *Precis rauana*, whose male is non-mimetic, but the female mimics well the male *macarista*: 24 males and 23 females were taken. This species is not often seen actually *within* the forest, but is to be found along the border-line between the forest and the open grass-land, or at the edge of the forest on the shore. In both these localities may be found beds of a thick-leaved aromatic Labiate herb, which may be the food-plant of the larva of this species. It is to be found also on the flowers of the "Gamboge" tree, *Haronga madagascariensis*, Chois. (*Hypericineae*), which particularly favours such localities, and attracts numbers of all the butterflies mentioned in this paper.

*Precis rauana* has the typical, very dashing and rapid flight of the genus to which it belongs, and is unlike that of its model. But the general impression gained from its appearance leaves no room for doubt that the female is a mimic of the male *Pl. macarista*. The male, having no white on the hind-wings, is not mimetic of this *Planema*, but on the other hand a fresh specimen often has such a rich crimson suffusion over the light-coloured band on the wings that I think it presents a decidedly Acraeine

appearance when one gets a glint of crimson as it flashes past. Another interesting point is that this butterfly seems, at first, to rely for its protection upon the appearance of its upper surface. It is not always an easy species to catch; and if one strikes at it and fails, it will settle again and open and close its wings, displaying the colouring of the upper sides. If, however, one follows up and strikes again so that it is really alarmed, it will fly off and make use of the markedly procryptic, dead-leaf like appearance of the *underside*, sitting motionless with the wings brought together over its back. I endeavoured to obtain ova from captive females, putting them with branches of the aromatic herb before mentioned, but was unsuccessful. The early stages are, I believe, not known.

#### COMBINATION II.

Seven examples of the principal model, the female of *Pl. macarista* (Plate XXXVI, fig. 1), were taken. A second model is provided by the female of *Pl. alcinoe camerunica*, of which 2 were captured, together with 8 males. The resemblance between these two female *Planemas* is extraordinarily close, so that it was a very long time before I was able to differentiate them. The male *alcinoe* is totally different and is of a type common in W. Africa, but comparatively rare in Uganda.

The black-and-white female of *Acraea jodutta*—the *jodutta* form of female—is beautifully synaposematic with the two *Planema* models. Of this mimic 3 were taken.

The models are closely mimicked by the abundant female of the form *tirikensis* (Plate XXXV, figs. 5, 6, 9; XXXVI, fig. 8) of *Pseudacraea eurytus hobleyi*, of which 40 were taken.

#### COMBINATION III.

The model is the eastern form, *paragea* (Plate XXXVI, fig. 7), of the western species *Planema epaea*. Of this 41 males and 34 females were taken, so that it seems not uncommon. But these figures give a quite disproportionate idea of its relative abundance in the forests. I happened to hit upon a locality at the edge of the forest where the species seemed to collect in numbers owing to the attractiveness of certain flowers, and I naturally made a point of visiting this locality every evening, since I wanted as many specimens as I could obtain. Had I

merely caught what I saw in the forests, it is doubtful if a dozen specimens would have been obtained. The Bugalla specimens are interesting as they are all very light-coloured, like the lightest forms obtained by Mr. Wiggins at Entebbe and presented by him to the Hope Department. They contrast very markedly with the 4 specimens which were all that I obtained in the forests of Damba Island, and were very dark indeed (Proc. Ent. Soc., 1912, pp. xxiii, lxxxvi).

The form of *eurytus hobleyi* mimetic of *paragea*, namely *obscura* (Plate XXXV, figs. 1, 10, 11, 13-16; XXXVI, fig. 13), was the least abundant of all the mimics into which this *Pseudacraea* subdivides, only 7 fully mimetic males and 19 such females being obtained.

The only other known mimic of *paragea*, namely the form *peculiaris* of *Papilio cynorta*, I did not obtain, much to my disappointment. The species does occur on the island, however, for I caught a single male, which is totally different in appearance from the female. It would be extremely interesting to ascertain whether the island female is also much paler than usual, following the model.

#### COMBINATION IV.

The model is *Pl. tellus eumelis (platyxantha)*, of which the male and female are alike (see Plate XXXVI, figs. 5, 6): 24 males and 9 females were captured. This species exhibits in a marked degree the nonchalance of a typical model. I spent a long time one evening trying to get a photograph of this butterfly on a clump of mauve Composite flowers, *Erlangea tomentosa*, S. Moore, which were extraordinarily attractive to all these butterflies; and although it frequently took alarm and flew away, it as frequently returned after a very short time. Indeed, I could almost have caught it in my hand.

There is one synaposematic *Acraea* in this Combination, namely *A. jodutta*, of which 3 males and 6 females of the *dorotheae* form were taken. The resemblance of this latter female form to *Pl. tellus* is extremely close, and until I had learnt the generic differences between *Acraea* and *Planema* I was always confusing the two. The specimens showed some variation: in one or two cases the black bar between the subapical and inner marginal tawny areas on the fore-wing is broken through, forming a variety comparable to those of *Ps. terra*, described on p. 613.

The form of *Ps. eurytus hobleyi*, mimetic of *Pl. tellus*, namely *terra* (Plate XXXV, figs. 2, 4; XXXVI, figs. 11, 12), was the most abundant of all the forms, 104 being taken altogether. Of these, 39 males and 26 females corresponded with the type, while 6 males and 20 females differed only by having the tawny subapical area on the fore-wing suffused with white scales to a greater or less extent. In 11 males and 1 female the black bar between the subapical and the inner marginal area was thinned or broken through, so that, in the most completely developed variety (No. 33 in list: Plate XXXIV, fig. 7) there is one large tawny area on the fore-wing of irregular shape, and bordered with black. An even more extreme form from Damba Island is represented on Plate XXXVI, fig. 16. To this variety Grünberg has given the name *impleta*.

TRANSITION IN BUGALLA ISLAND BETWEEN THE MIMETIC FORMS OF *Ps. eurytus hobleyi*.

I now come to the most interesting points, which this paper is intended to demonstrate. It will be seen in the tabular statement (pp. 618 et seqq.) that there are very many forms of *Pseudacraea eurytus hobleyi* not belonging to any of the types, but described as transitional.

(1) Between ♂ *hobleyi* with ♀ *tirikensis* and *obscura* there are 45 of these intermediates, (2) between *obscura* and *terra* 37, and (3) between *terra* and ♂ *hobleyi* with ♀ *tirikensis* 74.

Classes (1) and (3) are principally shown to be intermediate by the development in various degrees of the umber basal patch on the under surface of the hind-wing, a feature that is characteristic of the ♂ *hobleyi* and its ♀, *tirikensis*, but is absent from the typical *terra* and very faintly represented, and of a yellowish tint in the typical *obscura*. In (3), the umber triangle may be bordered, on the site of the white band of *hobleyi* and *tirikensis*, with whitish yellow, much paler than the rest of hind-wing under surface of *terra*. Furthermore the transition towards the ♀ pattern *tirikensis* in (1) and (3) is shown upon the upper surface by the whitish or whitish grey tint of the pale areas, especially the subapical bar, and, although to a less extent, the inner marginal patch of the fore-wing (Plate XXXIV, fig. 10; XXXV, figs. 3, 7, 8; XXXVI, figs. 14, 15). A slight tendency towards transition between *terra* and *hobleyi* is also sometimes seen in an orange

suffusion at the costal end of the white bar crossing the hind-wing, a tendency which is feebly developed in the specimen figured on Plate XXXV, fig. 12, and is only strongly marked in a single specimen from Bugalla (Plate XXXIV, fig. 9, No. 57 on the list). This interesting example is a male with fore-wings like the typical *hobleyi*, but hind-wings above of the *terra* form. Below, the hind-wings show the umber triangle of *hobleyi* well developed. There is little doubt that this specimen is a blend of *terra* and *hobleyi*, but, as regards the former examples, with slight orange suffusion, it must be remembered that the ♂ *Pl. macarista* itself often exhibits the same coloration. Indeed, in W. Uganda, Mr. Neave collected 2 examples of *Pl. pseudeuryta*, Hew., with the pattern of *macarista*, but the hind-wing bar on the upper surface entirely orange; and one of these was accompanied by a ♂ *hobleyi* with the same colouring. It is therefore probable that the forms here referred to are a mimetic modification of the ♂ *hobleyi*.

Class (2), the intermediates between *obscura* and *terra*, form a far more perfect transitional series. Commencing with a *terra* which shows merely a slight dusky suffusion at the margins of the orange areas, and a little dark colour along the nervures, one can trace the gradual increase of the *obscura* dark colour until one reaches a point midway between the two forms (*e.g.* Plate XXXVI, fig. 17); beyond this the *terra* colour is more and more swamped until one gets to specimens of *obscura* showing only a sprinkling with orange scales on the inner margin of the fore-wing. S. A. Neave's type of *obscura*, in the Hope Department, is really one of these intermediate forms. What may be considered the *real obscura* has no orange colouring on the upper surface, and it is a much better mimic of its model, *Planema epaea paragea*.

The commonest form, of all those on the island, is *terra*, the least common, *obscura*. The latter appears to be the least stable: it is, in fact, quite difficult to find one which shows no transition towards *terra*, *hobleyi* or *tirikensis*, and even those not transitional exhibit considerable variation. On the other hand, the forms *hobleyi* and *tirikensis* appear to be the most stable: they are very true to type and show extraordinarily little variation. It has already been shown that they very strongly impress their most characteristic feature, the umber basal triangle, on the hind-wings of

both *terra* and *obscura*, but it is almost impossible to find a specimen which one could describe as *hobleyi* or *tirikensis* influenced by *terra* or *obscura*. The specimen mentioned on p. 614 (Plate XXXIV, fig. 9), with fore-wings of *hobleyi* pattern and hind-wings of *terra* pattern, is the only exception to this which I have caught on Bugalla, out of the 356 *Pseudacraea*s. It has been pointed out on p. 614 that the ♂ *hobleyi* with an orange suffusion on the hind-wing are probably mimetic rather than transitional. I would suggest that, in Uganda at any rate, *hobleyi* and *tirikensis* are the most stable forms, and from them the others have been developed, namely *terra* and *obscura*.

The extraordinary number of transitional forms on Bugalla Island contrasts markedly with their scarcity on the mainland. In the very large collection presented by Mr. C. A. Wiggins to the Hope Department, which has been made in the neighbourhood of Entebbe on the mainland shore of the lake, only 25 miles or so to the N.E. of Bugalla Isle, there are relatively very few transitional specimens, and three out of the four mimetic patterns, viz. *hobleyi*, *tirikensis*, and *terra*, seem to keep very true to type. An account of the transitional forms observed in an examination of the 1909 material from Entebbe is published in "I. Congr. Internat. d'Ent.," 1910, vol. ii, p. 497. Among them was a form somewhat similar to that represented on Plate XXXIV, fig. 9, but much nearer to *terra* than this Bugalla specimen. *Obscura* appears to be an exception and to be variable on the mainland, but this form seems to be rare in the neighbourhood of Entebbe, and Mr. Wiggins' collection contains only a few specimens. Mr. Neave's much longer series from many localities in Uganda show great variety.

The explanation of this relative variability of the forms of *P. eurytus hobleyi* on Bugalla, and on Damba too, seems to be as follows :—

The various *Planema* models which abound on the mainland, are relatively extremely scarce on these islands. The figures for Bugalla and for a part of the Wiggins collection have been given on p. 607, and it was also pointed out on p. 611 that the number of *Planema epaea paragea* was not a correct measure of their true relative abundance. I believe this scarcity on the island is due to scarcity of food-plant. I know the food-plants of both *macarista* and *poggei*—creepers which I never saw at all on Bugalla Island.

Now on the island it is quite conceivable that an enemy of the *Pseudacraea*s might never see a *Planema* at all: at any rate the latter are so extremely scarce that they can have little protective value, and the *Pseudacraea*s would gain little by resembling models that are much less common than themselves. Consequently any form of *Pseudacraea* that is produced will have as much chance of surviving as the most perfect mimic, and the transitional forms appear almost as abundantly as the types. On the mainland, however, conditions are very different. Owing to the abundance of *Planemas*, their presence is of definite protective value to the *Pseudacraea*s, and varieties that are produced which do not conform rigidly to the types of the models are put at a disadvantage in the struggle for existence, and are destroyed by enemies in preference to the types. On the mainland the mimics are kept rigidly up to the mark, and transitional varieties between *hobleyi*, *tirikensis* and *terra* are by comparison rarely to be found. It may perhaps be argued that there is some condition productive of greater variability on the island, but not on the mainland. But though intermediate varieties are scarce on the mainland, yet they *do* occur, and it is difficult not to believe that they are rarely caught by collectors because they are so much more destroyed by enemies than are those which more closely resemble the models. If, as I believe, this explanation be the correct one, it supplies the strongest possible proof of the reality of mimicry and of the power of natural selection to preserve it—indeed it is a crucial test.

#### LOCALITIES REFERRED TO IN THE FOLLOWING TABLES.

Bugalla is a large island made up of broad northern and southern portions connected by an intermediate and comparatively narrow section. A narrow arm runs eastward from the northern part, Buninga, and meets at a right angle a less narrow northward extension from the southern part. At the angle of Kerinya, as this isthmus is called, and near its N.E. shore, my camp was situated on a forest-ringed grassy hill about 150 ft. above lake level. The place is known as Lutoboka or Fort Stanley. Kerinya itself is bordered right down to the shore with forest, behind which grassy downs rise to a height of about 350 ft. The forest belt is in some places very narrow, not more

than 20 yards through. The localities indicated by letters in the tables are as follows :—

A. A narrow hippopotamus track through the forest belt which is here about 300 yards wide. There were no open spaces in its course. The butterflies were chiefly captured at the two ends.

B. Another path to the N.W. of A. The forest is here so narrow that the path is only about 20 yards long.

C. The sandy beach at the edge of the forest to the E. of my camp.

“On shore.” A similar locality to the N. of camp.

D. At the landward edge where the forest is replaced by grass near the end of track A.

“At edge of forest.” These words are used for the continuation of the forest edge N.W. from D to the end of track B.

E. The continuation of the forest edge S.E. from the landward end of track A. While all the other localities hitherto mentioned are only a few feet above lake level, the forest edge at E rises south-eastwards up to about 150 ft.



		NYMPHALINE MIMICS.				PAPILIONID MIMICS.					
<i>Pseudacraea kuenowi hypoxantha</i> ♂ ♀ mimics IA	Serial number	Forms of <i>Pseudacraea eurytus hobleyi</i>				<i>Precis rauana</i>		<i>Papilio dardanus</i>		<i>Papilio cynorta</i>	
		♂	♀			♀ mimics I	♂ non-mimetic	♀ <i>f. planenoides</i> mimics IA	♂ non-mimetic	♀ <i>f. peculiaris</i> mimics III	♂ non-mimetic
			♀ "poggeoides" mimicking IA								
			♂ "hobleyi" " IB								
			♀ "tirikensis" " II								
			♂ "obscura" " III								
			♀ "terra" " IV								
	1										
		1	♂ terra, f.-w. black, subapical bar thin.								
		2	♂ transitional, midway between terra and obscura.								
		3	♂ terra								
		4	♂ terra.								
		5	♂ hobleyi.								
		6	♀ tirikensis.								
1		7	♂ terra, f.-w. subapical area slightly suffused white.								
		8	♂ obscura, f.-w. inner margin slightly suffused terra orange.								
		9	♂ like 2.								
		10	♂ transitional, ground colour of obscura; trace of yellow suffusion f.-w. inner margin; h.-w. whitish at base especially at site of band of hobleyi, basal triangle strong below.								
		11	♂ hobleyi.								
		12	♀ terra.								
		13	♀ terra.								
		14	♀ obscura with trace of terra colour.								
		15	♂ hobleyi.								
		16	♀ terra.								
		17	♀ terra.								
		18	♀ obscura.								
		19	♂ terra, transitional to obscura; inner marginal f.-w. area very slightly suffused at edge with dark colour of obscura.								
		20	♂ terra, like 19, but subapical area small.								
		21	♂ terra, like 20.								
		22	♂ terra, transitional to hobleyi; subapical area white, inner marginal area rather dusky; h.-w. at base suffused with white, and basal triangle below well marked.								
		23	♀ terra, subapical area white, faintly suffused yellow; distinct basal umber suffusion h.-w. below.								
		24	♀ obscura, transitional to tirikensis ♀. F.-w. inner marginal and subapical areas and base of h.-w. whitish; distinct basal umber suffusion h.-w. below.								
		25	♂ hobleyi.								
		26	♂ terra.								
		27	♂ terra, very slight umber suffusion base h.-w. below.								
		28	♀ tirikensis.								

On Dec. 1, 1912, a *planenoides* female was taken, locality B in forest. From ova deposited by it 12 males, 3 *planenoides* females and 7 *hippocoon* females were reared.

No females were captured.

A single male was taken in forest, locality A, Apr. 22, 1912.



NYMPHALINE MIMICS.			
Forms of <i>Pseudacraea eurytus hobleji.</i>			
<i>Pseudacraea kuenowii hypoxantha.</i> ♂ mimics IA	Serial number	♀ " <i>poggeoides</i> " mimicking IA ♂ " <i>hobleji</i> " " " IB ♀ " <i>tirikensis</i> " " " II ♂♀ " <i>obscura</i> " " " III ♂♀ " <i>terra</i> " " " IV	<i>Precis rauana</i>
			♀ mimics I ♂ non-mimetic
	29	♀ transitional from <i>terra</i> to <i>tirikensis</i> ; f.-w. subapical bar white, and inner marginal area very pale; h.-w. basal triangle very strongly developed.	
	30 ♂	<i>hobleji.</i>	
	31 ♂	<i>hobleji</i> , very dwarfed.	
	32 ♂	<i>obscura</i> , h.-w. basal triangle fairly marked below.	
	33 ♂	<i>terra</i> , variety somewhat resembling form " <i>fulvaria</i> "; it looked very different from typical <i>terra</i> on wing. F.-w. subapical and inner marginal areas enlarged, and black bar between them broken through, only represented at its outer part by tooth projecting from hind margin to about middle of wing.	
	34 ♂	transitional <i>terra</i> , slightly suffused with <i>obscura</i> ; dark colour on nervures and at margins of orange.	
	35 ♂	<i>terra</i> , variety approaching 33, but subapical area slightly whiter than rest, and black tooth from hind margin just touches with its tip the costal black.	
	36 ♂	<i>terra.</i>	1
	37 ♂	<i>terra.</i>	
	38 ♂	<i>terra.</i>	
	39 ♂	<i>terra</i> , h.-w. basal suffusion marked below.	
	40 ♂	<i>hobleji.</i>	
	41 ♀	<i>tirikensis.</i>	
	42 ♀	<i>terra</i> , f.-w. subapical bar white.	
	43 ♀	<i>obscura</i> , transitional, large pale areas.	
	44 ♂	<i>terra</i> , h.-w. basal triangle well marked below.	
	45 ♂	transitional, like 2.	
	46 ♀	<i>terra</i> , ragged and deformed.	
	47 ♂	<i>hobleji.</i>	
	48 ♀	<i>tirikensis.</i>	
	49 ♀	<i>terra</i> , slight umber basal suffusion h.-w. below.	
	50 ♀	<i>terra</i> , h.-w. as above: f.-w. subapical area suffused white.	
	51 ♀	<i>obscura</i> , slight basal suffusion h.-w. below.	
	52 ♂	<i>obscura</i> , fairly marked basal suffusion h.-w. below.	
	53 ♂	transitional between <i>obscura</i> and <i>terra</i> . F.-w. subapical area very small and richly coloured, inner marginal orange represented by two patches orange suffusion: slight basal suffusion h.-w. below.	
	54 ♀	<i>poggeoides.</i>	
	55 ♀	<i>terra</i> , transitional to <i>tirikensis</i> ; f.-w. subapical area slightly suffused white; distinct basal triangle h.-w. below.	
	56 ♀	<i>terra</i> , transitional to <i>tirikensis</i> ; f.-w. subapical area white, inner marginal area suffused white. H.-w. below bar has marked basal triangle.	
	57 ♂	remarkable specimen. F.-w. of ♂ <i>hobleji</i> pattern, h.-w. of <i>terra</i> , with basal triangle so well marked that it is also visible above.	1
	58 ♀	<i>tirikensis.</i>	
	59 ♀	<i>tirikensis.</i>	
	60 ♀	<i>obscura</i> , like 51.	
	61 ♀	transitional, midway between <i>obscura</i> and <i>terra</i> .	



		NYMPHALINE MIMICS.			
<i>Pseudacraea kuenowi hypoxantha.</i> ♂ mimics IA	Serial number	Forms of <i>Pseudacraea eurytus hobleyi</i>		<i>Precis rauana</i>	
			♀ "poggeoides" mimicking IA ♂ "hobleyi" " " IB ♀ "tirikensis" " " II ♂ "obscura" " " III ♂ ♀ "terra" " " IV	♀ mimics I	♂ non-mimetic
	62	♂	<i>obscura</i> , slight umber suffusion base h.-w. below.		
	63	♂	<i>terra</i> .		
	64	♂	<i>terra</i> .		
	65	♂	<i>terra</i> .		
	66	♀	<i>tirikensis</i> .		
	67	♀	<i>obscura</i> .		
	68	♀	<i>obscura</i> , h.-w. rather pale above; distinct umber basal suffusion below.		
	69	♀	<i>terra</i> , like 55.		
	70	♂	<i>obscura</i> , like 62.		
	71	♀	<i>terra</i> , like 50.		
	72	♂	<i>hobleyi</i> .		
	73	♀	<i>tirikensis</i> .		
	74	♀	<i>tirikensis</i> .		
	75	♀	<i>terra</i> , white subapical area, f.-w.; very slight basal umber suffusion h.-w. below.		
	76	♀	<i>terra</i> , like 56.		
	77	♀	<i>terra</i> , black bar on f.-w. thinned.		
	78	♀	<i>terra</i> , transitional to <i>obscura</i> ; slight dusky suffusion on margin of f.-w. inner marginal area.		
	79	♀	<i>terra</i> , like 49.		
	80	♂	<i>terra</i> , variety. Black subapical bar broken through at its middle, the black costal area suffused with orange at its posterior border, with one well-defined round mark at end of cell.		
	81	♀	<i>terra</i> , like 77.		
	82	♀	<i>obscura</i> : transitional to <i>tirikensis</i> ; h.-w. marked basal umber below.		
	83	♀	<i>obscura</i> .		
	84	♂	<i>terra</i> .		
	85	♂	<i>hobleyi</i> .		
	86	♀	transitional, like 61.		
	87	♀	<i>terra</i> .		
	88	♀	<i>obscura</i> , like 51.		
	89	♂	<i>terra</i> , like 27.		
	90	♂	<i>terra</i> .		
	91	♂	<i>terra</i> , f.-w. subapical area very slightly suffused white; h.-w. basal area very slightly suffused umber.		
	92	♀	<i>terra</i> .		
	93	♀	<i>terra</i> , like 50.		
	94	♂	<i>terra</i> , like 1.		
	95	♂	<i>hobleyi</i> .		





DATE.	LOCALITY.	ACRAEINE ( <i>Planema</i> ) MODELS.								ACRAEINE MIMICS.					
		I		II		III		IV		<i>Acraea jodutta</i>			<i>Acraea alciope</i>		
		A		B		<i>alcinoe camerunica</i>	<i>epaea paragea</i>		<i>tellus eumelis</i>		<i>jodutta</i> mimics II	<i>dorothea</i> mimics IV	Non-mimetic ♂	<i>aurivillii</i> ♀ mimics IB	Non-mimetic ♂
		<i>poggei nelsoni</i>		<i>macarista macarista</i>			♂ not mimicked	♂	♀	♂					
♂	♀	♂	♀												
1912. July 16	At edge of forest (D)														
July 17	At edge of forest (D)														
July 19	At edge of forest (D)														
July 21	At edge of forest (D)														
July 21	In forest (A) . . .														
July 22	In forest (C). . .													1	
July 23	At edge of forest (D)														
July 24	At edge of forest (D)					1									
July 26	At edge of forest (D)														
July 28	At edge of forest (D)														
July 29	At edge of forest (D)													1	
July 30	At edge of forest (E)							2	2						
July 31	At edge of forest (E)							3	3						

NYMPHALINE MIMICS.			
<i>Pseudacraea kuenowi hypoxantha</i> ♂ mimics ♀ IA	Forms of <i>Pseudacraea eurytus hobleyi</i>		<i>Precis rauana</i>
	Serial number	♀ "poggeoides" mimicking IA ♂ "hobleyi" " " IB ♂ "tirikensis" " " II ♂ "obscura" " " III ♂ "terra" " " IV	♀ mimics I ♂ non-mimetic
	125	♀ <i>terra</i> .	
	126	♀ <i>terra</i> , like 119.	
	127	♀ <i>obscura</i> , transitional to <i>tirikensis</i> , like 24.	
	128	♂ <i>terra</i> , f.-w. black subapical bar of very irregular outline and almost cut through at anterior and posterior ends. This specimen looked distinctly different from type on wing: there is also a narrow streak of light fulvous at the black apex of the cell.	1
	129	♂ <i>terra</i> , like 7.	
	130	♀ <i>tirikensis</i> .	
	131	♂ <i>terra</i> , f.-w. subapical area has faint trace white suffusion at posterior end.	
	132	♂ <i>terra</i> , like 27.	
	133	♂ <i>obscura</i> .	
	134	♂ transitional, midway between <i>obscura</i> and <i>terra</i> ; h.-w. shows marked basal triangle below.	
	135	♀ <i>terra</i> , like 119.	
	136	♀ <i>terra</i> , like 119.	
	137	♀ <i>terra</i> , like 115.	
	138	♀ <i>terra</i> , like 115.	
	139	♂ <i>terra</i> } recorded as captured, but since mislaid.	
	140	♀ <i>terra</i> }	
	141	♂ <i>terra</i> .	
	142	♂ <i>terra</i> .	
	143	♂ <i>obscura</i> , transitional to <i>hobleyi</i> ; f.-w. inner margin shows slight suffusion yellow; h.-w. basal triangle below distinct.	
	144	♀ <i>terra</i> .	
	145	♀ <i>terra</i> .	
	146	♂ <i>hobleyi</i> , like 105.	
	147	♀ <i>tirikensis</i> .	
	148	♂ <i>terra</i> .	
	149	♂ <i>hobleyi</i> .	
	150	♂ <i>terra</i> , f.-w. inner marginal area small; h.-w. basal triangle well marked below.	2
	151	♂ <i>terra</i> , like 150.	
	152	♀ <i>tirikensis</i> (parent of series E).	
	153	♂ <i>obscura</i> .	
	154	♀ <i>obscura</i> .	
1	155	♂ <i>terra</i> , like 91.	
	156	♀ <i>terra</i> , like 50.	1
	157	♀ transitional between <i>obscura</i> and <i>tirikensis</i> . All pale markings of <i>obscura</i> white, and basal triangle on h.-w. very marked.	1
	158	♀ <i>terra</i> , f.-w. subapical area suffused white at each end; h.-w. shows distinct basal triangle below.	1
	159	♂ <i>obscura</i> , like 32.	
	160	♀ <i>terra</i> , transitional to <i>tirikensis</i> . Ground-colour very dark; f.-w. subapical area white; h.-w. basal triangle marked.	



NYMPHALINE MIMICS.				
<i>Pseudacraea kuenowi hypoxantha</i> ♂ mimics IA	Forms of <i>Pseudacraea eurytus hobleyi.</i>		<i>Precis rauana</i>	
	Serial numbers		♀ mimics I	♂ non-mimetic
		♀ " <i>poggeoides</i> " mimicking IA ♂ " <i>hobleyi</i> " " IB ♀ " <i>tirikensis</i> " " II ♂ " <i>obscura</i> " " III ♂ " <i>terra</i> " " IV		
	161	♂ <i>terra</i> , like 39.		
	162	♀ <i>obscura</i> .		
	163	♂ <i>terra</i> .		
	164	♂ <i>terra</i> , f.-w. subapical and inner marginal area whitish; h.-w. basal triangle distinct below.		
	1	165 ♀ <i>terra</i> (parent of series F).		
	166	♂ <i>obscura</i> , like 32.		
	167	♂ <i>terra</i> , faint dusky suffusion f.-w. inner margin; subapical area white.		
	168	♀ <i>tirikensis</i> .		2
	169	♂ <i>obscura</i> , all pale areas rather whitish.		
	170	♀ <i>terra</i> , like 49.		
			1	1
	171	♂ <i>obscura</i> , transitional to <i>hobleyi</i> : trace yellow suffusion f.-w. inner margin; h.-w. whitish at base, basal triangle marked below.		
	172	♂ <i>hobleyi</i> .		
	173	♂ transitional, like 2.		
	174	♀ <i>tirikensis</i> (parent of series G).		
	175	♀ <i>obscura</i> , like 24.		
	176	♀ <i>terra</i> , f.-w. subapical area white, inner marginal area suffused white; trace basal triangle h.-w. below.		
			1	2

DATE.	LOCALITY.	ACRAEINE ( <i>Planema</i> ) MODELS.						ACRAEINE MIMICS.									
		I		II		III		IV			<i>Acraea jodutta</i>			<i>Acraea alciope</i>			
		A		B		alcinoe camerunica		epaea para-gea		tellus eume-lis			jodutta ♀ mimics II	dorothea ♀ mimics IV	Non-mimetic ♂	aurivillii ♀ mimics IB	Non-mimetic ♂
		poggei nelsoni		macarista	macarista	♀	♂ not mimicked	♂	♀	♂	♀						
1912. Aug. 6	At edge of forest (E)				1												
Aug. 7	On shore . . .																
Aug. 8	At edge of forest (D)																(one female is transitional between the eastern and western forms.)
Aug. 8	At edge of forest (E)						1										(broad orange border to h.-w. white bar.)
Aug. 9	At edge of forest (D)																
Aug. 9	At edge of forest (E)						2	1									
Aug. 10	Near camp, at edge of forest . . .																1
Aug. 10	At edge of forest (D)												1 (white f.-w. subapical area.)				1 (intermediate between E. and W. forms.)
Aug. 10	At edge of forest (E)						2	2									
Aug. 10	In forest (B) . .						1										
Aug. 11	In forest (A) . .																
Aug. 11	At edge of forest (E)						1										
Aug. 11	At edge of forest (D)									1							

		NYMPHALINE MIMICS.			
<i>Pseudacraea kuenowi hypoxantha</i> ♂ ♀ mimics IA	Serial number	Forms of <i>Pseudacraea eurytus hobleyi</i>		<i>Precis rauana</i>	
		♂	♀	♀ mimics I	♂ non-mimetic
		♂	♀ "poggeoides" mimicking IA		
			♀ "hobleyi" " IB		
		♂	♀ "tirikensis" " II		
		♂	♀ "obscura" " III		
		♂	♀ "terra" " IV		
	177	♀	<i>tirikensis</i> , like 54.		
	178	♀	<i>terra</i> , like 176.		
				1	
					2
	179	♀	<i>tirikensis</i> .		
				1	
	180	♂	transitional, like 2.		
	181	♂	transitional, midway between <i>obscura</i> and <i>terra</i> , with trace of basal umber suffusion on h.-w. below.		
	182	♀	<i>obscura</i> , like 124.		
1	183	♂	<i>obscura</i> .	2	1
	184	♂	<i>obscura</i> .		
	185	♀	<i>obscura</i> .		
	186	♂	<i>terra</i> .		
	187	♀	<i>tirikensis</i> .		
	188	♀	<i>terra</i> , like 78.		
	189	♀	<i>terra</i> , like 119.		
	190	♂	<i>terra</i> .		
	191	♂	<i>terra</i> , like 19.		
	192	♀	<i>tirikensis</i> .		
	193	♀	<i>tirikensis</i> . Both h.-ws. symmetrically shorn off near base.		
	194	♀	<i>terra</i> , f.-w. inner marginal area slightly suffused white.		



NYMPHALINE MIMICS.				
<i>Pseudacraea kuenowi hypoxantha</i> ♂ ♀ mimics IA	Forms of <i>Pseudacraea eurytus hobleyi</i>		<i>Precis rauana</i>	
	Serial number	♀ "poggeoides" mimicking IA ♂ "hobleyi" " " IB ♀ "tirikensis" " " II ♂ "obscura" " " III ♂ ♀ "terra" " " IV	♀ mimics I	♂ non-mimetic
	195	♂ <i>obscura</i> .	1	1
	196	♂ <i>terra</i> , like 1.		
	197	♀ <i>terra</i> , f.-w. subapical area whitish.		
	198	♀ <i>obscura</i> , transitional to <i>terra</i> ; f.-w. inner margin has very slight yellow suffusion.		
	199	♂ <i>hobleyi</i> .		
	200	♂ <i>terra</i> , like 7.		
	201	♂ transitional, like 2.		
	202	♀ <i>tirikensis</i> .		
			1	
	203	♂ <i>terra</i> , like 27.		
	204	♀ <i>terra</i> , f.-w. subapical and inner marginal areas slightly suffused white.		
	205	♀ transitional from <i>obscura</i> to <i>tirikensis</i> . F.-w. subapical area large and cream coloured; inner marginal area slightly suffused yellow; h.-w.; cream coloured, with paler band at base; basal triangle marked below.		
	206	♂ <i>terra</i> , like 122.		
	207	♂ <i>terra</i> , like 91.		
	208	♀ <i>terra</i> , like 50.		
	209	♂ <i>obscura</i> .		
	210	♂ <i>terra</i> .		
	211	♀ <i>terra</i> .		
	212	♀ <i>terra</i> , f.-w. subapical area white, with yellow along nervures; h.-w. below shows distinct basal umber suffusion.		
	213	♀ <i>terra</i> , like 212.		
	214	♀ <i>terra</i> , like 176.		
	215	♀ <i>obscura</i> , f.-w. subapical area large and whitish. Margin of one h.-w. very ragged and torn as if by lizard.	1	

DATE.	LOCALITY.	ACRAEINE ( <i>Planema</i> ) MODELS.								ACRAEINE MIMICS.					
		I		II		III		IV		<i>Acraea jodutta</i>			<i>Acraea alciope</i>		
		A	B	<i>alcinoe camerunica</i>	<i>epaea para-gea</i>	<i>tellus eumelis</i>	♀	♂	♀	♀	♀	♂	♀	♀	♂
		<i>poggei nelsoni</i>	<i>macarista macarista</i>												
1912. Aug. 20	At edge of forest (E)								1	1	1				
Aug. 21	At edge of forest (E)			1				2							
Aug. 22	At edge of forest (E)					1									
Aug. 24	At edge of forest (E)				1	1									
Aug. 26	At edge of forest (D)											1 (black f.-w. bar broken at hind margin, so that subapical and inner marginal areas are continuous; they are suffused with white near costa)		1	
Aug. 26 " 27	At edge of forest (E)					1	2	2 1 (f.-w. subapical area white, and inner marginal area suffused white)	1	1					
Aug. 28	At edge of forest (D)										1				

NYMPHALINE MIMICS.				
<i>Pseudacraea kuenowi hypoxantha</i> ♂ mimics I A	Forms of <i>Pseudacraea eurytus hobleyi</i>		<i>Precis rauara</i>	
	Serial number	♂ ♀ "poggeoides" mimicking I A "hobleyi" " " IB "tirikensis" " " II "obscura" " " III "terra" " " IV	♀ mimics I	♂ non-mimetic
	216 ♂ 217 ♂ 218 ♀	<i>terra</i> , like 39. <i>terra</i> , like 122. <i>terra</i> , like 78.		
	219 ♂ 220 ♂	<i>terra</i> , f.-w. subapical area suffused white at both ends. <i>terra</i> , variety; f.-w. subapical area large and connected with inner marginal area by isthmus, the black bar being broken at costal end and the cell suffused with yellow.		
	221 ♂ 222 ♀ 223 ♀ 224 ♀	<i>hobleyi</i> . F.-w. band slightly suffused white at posterior end. <i>tirikensis</i> . <i>tirikensis</i> . <i>terra</i> , like 119.		
	225 ♂ 226 ♂ 227 ♀ 228 ♀ 229 ♀ 230 ♀	<i>terra</i> . <i>hobleyi</i> . <i>tirikensis</i> . <i>terra</i> . <i>obscura</i> . <i>terra</i> , like 176.		
			12	
	231 ♂ 232 ♂ 233 ♂ 234 ♂ 235 ♂ 236 ♂ 237 ♂ 238 ♀ 239 ♀ 240 ♀ 241 ♀	<i>hobleyi</i> . <i>terra</i> . <i>terra</i> . <i>terra</i> . <i>terra</i> , like 27. <i>terra</i> , like 27. <i>obscura</i> , transitional to <i>hobleyi</i> . F.-w. subapical area white; h.-w. basal umber suffusion marked below. <i>tirikensis</i> . <i>terra</i> , like 78. <i>terra</i> , like 42. <i>terra</i> , transitional to <i>tirikensis</i> . F.-w. subapical area small and white; inner marginal area small, suffused white; h.-w. below shows distinct basal triangle.		





DATE.	LOCALITY.	ACRAEINE ( <i>Planema</i> ) MODELS.								ACRAEINE MIMICS.				
		I		II		III		IV		<i>Acraea jodutta</i>			<i>Acraea alciope</i>	
		A	B	<i>alcinoe camerunica</i>		<i>epaea para-gea</i>		<i>tellus eume-lis</i>		<i>jodutta</i> ♀ mimics II	<i>doro heae</i> ♀ mimics IV	Non-mimetic ♂	<i>aurivillii</i> ♀ mimics IB	Non-mimetic ♂
		<i>poggei nelsoni</i>	<i>macarista macarista</i>	♀	♂ not mimicked	♂	♀	♂	♀					
1912. Sept. 11	At edge of forest (D) —continued													
Sept. 12	At edge of forest (D)										1		1 (this specimen nearly approaches ♀ f. <i>alciope</i> , but is to some extent transitional)	
Sept. 14	At edge of forest (D)								1					
Sept. 15	At edge of forest (E)													
Sept. 16	At edge of forest (D)													
Sept. 16	At edge of forest (E)													
Sept. 17	At edge of forest (D)													
Sept. 19	At edge of forest (E)													
Sept. 19	At edge of forest (D)													
Sept. 21	At edge of forest (D)													
Sept. 26	At edge of forest (E)			1										
Oct. 2	At edge of forest (E)													
Oct. 4	In forest (C)													
Oct. 9	At edge of forest													
Oct. 10	At edge of forest (E)			1										
Oct. 13	In forest (A)													
Oct. 17	At edge of forest (E)								1					

NYPHALINE MIMICS.

<i>Pseudacraea kuenowi hypoxantha</i> ♂ mimics IA	Forms of <i>Pseudacraea eurytus hobleyi.</i>		<i>Precis rauana</i>	
	Serial number		♀ mimics I	♂ non-mimetic
		♂ ♀ "poggeoides" mimicking IA ♂ ♀ "hobleyi" " IB ♂ ♀ "tirikensis" " II ♂ ♀ "obscura" " III ♂ ♀ "terra" " IV		
	267	♀ 'obscura, like 51.		
	268	♀ obscura, like 43.		
	269	♀ tirikensis.	2	1
	270	♀ obscura, like 51 (parent of series H).		
	271	♀ terra, like 56. Both h.-ws. have large part of periphery missing, the damage on right side also extending to hind margin of f.-w. ? attack by bird.		
	272	♂ obscura, like 8.	1	1
	273	♀ terra, like 104.		
	274	♀ terra, like 104.		
	275	♀ tirikensis, f.-w. white subapical area suffused yellow on outer margin.		
1	276	♂ obscura, like 143.		
	277	♂ terra. F.-w. shows slight suffusion with yellow on costa just internal to subapical area. This was enough to give the specimen an appearance different from the typical form on the wing.		
	278	♂ obscura, like 263.		
	279	♀ tirikensis.		
	280	♀ terra.		
	281	♀ terra.		
	282	♂ obscura, like 32.		
	283	♀ transitional, like 29 : ground-colour very dark.		
	284	♂ obscura, like 143.		1
	285	♀ tirikensis.		
	286	♀ obscura, like 51.		
	287	♂ terra, like 27.		
	288	♀ terra. F.-w. subapical area white : inner marginal area duskily suffused.	3	
	289	♂ terra, like 19.		
	290	♂ transitional, like 2.		
	291	♀ terra.		
	292	♂ hobleyi.		
				1
	293	♂ terra.		
	294	♀ terra.		
	295	♂ terra, like 122.		
	296	♀ tirikensis (parent of series J).		
	297	♂ hobleyi.		



NYPHALINE MIMICS.

<i>Pseudacraea kuenowi hypoxantha</i> ♂ ♀ mimics IA	Forms of <i>Pseudacraea eurytus hobleyi</i>		<i>Precis rauana</i>	
	Serial number		♀ mimics I	♂ non-mimetic
		♀ "poggeoides" mimicking IA ♂ "hobleyi" " IB ♀ "tirikensis" " II ♂ "obscura" " III ♀ "terra" " IV		
	298	♂ terra.		
	299	♂ terra.		
	300	♀ terra.		
	301	♀ obscura, like 43.		
	302	♂ hobleyi.		
	303	♂ obscura, like 62.		
	304	♂ terra, like 39.		
	305	♂ terra, like 122.		
	306	♂ terra, like 122.		
	307	♂ hobleyi.		
	308	♀ terra, like 42 (parent of series K).		
	309	♂ terra.		
	310	♂ terra		
	311	♀ tirikensis.		
	312	♀ tirikensis.		
	313	♀ terra, pale ground-colour; f.-w. subapical area large and cream coloured; inner marginal area dusky suffused.		
	314	♀ tirikensis.		
	315	♀ tirikensis.		
	316	♂ terra, like 27.		
	317	♂ transitional like 2.		
	318	♀ obscura, like 51.		
	319	♂ hobleyi.		
	320	♀ terra.		
	321	♂ terra.		
	322	♂ hobleyi, white h.-w. band small, suffused yellow anteriorly.		
	323	♂ obscura, transitional to hobleyi: h.-w. rather whitish at base, and basal triangle well marked below.		
	324	♀ remarkably interesting specimen coming very near to the typical <i>W. eurytus</i> . Ground-colour of <i>tirikensis</i> ♀. F.-w. subapical area, in size and position that of <i>terra</i> , is white: inner marginal area contracted, also white. H.-w. has white base, and close to origin is slightly suffused with yellow. Black border to white is broader than in typical <i>tirikensis</i> . Basal umber suffusion below h.-w. poorly developed.		
	325	♀ obscura, like 43.		
	326	♂ terra, like 91.		
	327	♀ terra, like 50.		

DATE.	LOCALITY.	ACRAEINE ( <i>Planema</i> ) MODELS.								ACRAEINE MIMICS.				
		I		II		III		IV		<i>Acraea jodutta</i>			<i>Acraea alciopae</i>	
		A	B	<i>alcinoe camerunica</i>		<i>epaea para-gea</i>		<i>tellus eume-lis</i>		<i>jodutta</i> ♀ mimics II	<i>dorothea</i> ♀ mimics IV	Non-mimetic ♂	<i>aurivillii</i> ♀ mimics 1B	Non-mimetic ♂
		<i>poggei nelsoni</i>	<i>macarista macarista</i>	♀	♂ not mimicked	♂	♀	♂	♀					
♂	♀	♂	♀											
1912. Nov. 13	At edge of forest (E) —continued													
Nov. 18	In forest (C) . . .													
Nov. 23	At edge of forest (E)													
Nov. 24	On shore . . . . .													
Dec. 1	At edge of forest (E)		1											
Dec. 6	At edge of forest (E)													
Dec. 6	At edge of forest (D)													
Dec. 8	In forest (A) . . .													
Dec. 9	At edge of forest (E)													
Dec. 13	At edge of forest (E)													
Dec. 16	At edge of forest (D)		1											
Dec. 19	At edge of forest (E)													
Dec. 20	At edge of forest (E)													
Dec. 21	At edge of forest (E)													
Dec. 27	At edge of forest (E)													
Dec. 30	At edge of forest (E)													
1913. Jan. 5	In forest (A) . . .													
Jan. 8	In forest (B) . . .													
Jan. 12	In forest (A) . . .								1					
Jan. 25	At edge of forest (E)										1			
Jan. 26	In forest (A)													
Feb. 13	At edge of forest (E)					1	1							

NYPHALINE MIMICS.

<i>Pseudacraea kuenowi hypoxantha</i> ♂ ♀ mimics IA	Forms of <i>Pseudacraea eurytus hobleyi</i>		<i>Precis rauana</i>	
	Serial number	♀ "poggeoides" mimicking IA ♂ "hobleyi" " " IB ♀ "tirikensis" " " II ♂ ♀ "obscura" " " III ♂ ♀ "terra" " " IV	♀ mimics I	♂ non-mimetic
	328	♀ <i>tirikensis</i> .		
	329	♀ <i>terra</i> , f.-w. subapical area very large; black bar thinned.		
	330	♀ <i>obscura</i> .		
	331	♀ <i>obscura</i> .		
			1	
	332	♀ <i>terra</i> , like 204.		
	333	♀ <i>tirikensis</i> .	1	1
	334	♂ <i>terra</i> .		
I				
	335	♂ <i>terra</i> .		1
	336	♂ <i>hobleyi</i> .		
	337	♀ <i>terra</i> , like 42.		
	338	♂ <i>hobleyi</i> .		
	339	♀ <i>tirikensis</i> .		
	340	♂ <i>terra</i> , like 39.		
	341	♀ <i>terra</i> , f.-w. subapical area large and suffused white; black bar very much thinned; distinct basal umber h.-w. below.		
	342	♀ <i>terra</i> , like 153.		
	343	♀ <i>terra</i> , transitional to <i>obscura</i> : f.-w. subapical area small and whitish; inner marginal area duskiy suffused.		
	344	♂ <i>terra</i> , f.-w. subapical and inner marginal areas contracted;		
	345	♀ <i>terra</i> , like 111.		
1	346	♂ <i>hobleyi</i> .		
	347	♂ <i>terra</i> .		
	348	♀ <i>tirikensis</i> .		
			1	
	349	♂ <i>terra</i> , like 39.		
	350	♀ <i>obscura</i> .		
	351	♀ <i>terra</i> .		
	352	♀ <i>terra</i> , like 50.		
	353	♂ <i>terra</i> , like 344.		
	354	♂ <i>hobleyi</i> .		
	355	♀ <i>obscura</i> .		



## EXPLANATION OF PLATE XXXIV.

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The figures are about  $\frac{5}{8}$  of the natural size.

Transitional forms of *Pseudacraea eurytus hobleyi*, Neave, from Bugalla Island, one female (fig. 11) resembling a typical western female of *eurytus*, L., from the Lagos district, represented in fig. 12 with its model, *Planema epaea*, from the same locality, in fig. 13.

Figs. 1-8 a series of the form *terra*, showing a very gradual transition from an almost typical example (1) to three specimens (6-8) in which the subapical bar is distinctly continuous with the great triangular patch of the fore-wing. Fig. 8 represents a not quite typical form of the var. *impleta*, Grünb.

- FIG. 1. At edge of forest (Locality D), Sept. 7, 1912. Form *terra*, ♀. No. 260 in list. The black bar between subapical and inner marginal yellow areas is thinned.
2. In forest (A), April 7, 1912. Form *terra*, ♀. No. 77 in list. The thinning of the black bar is marked.
3. At edge of forest (E), Sept. 15, 1912. Form *terra*, ♂. No. 277 in list. The slight yellow suffusion of black costal border gave the specimen a different appearance on the wing. This specimen has been noted in Proc. Ent. Soc., Dec. 4, 1912, p. cxxxviii.
4. At edge of forest (E), Nov. 13, 1912. Form *terra*, ♀. No. 329 in list. Black bar nearly broken through.
5. At edge of forest (D), July 17, 1912. Form *terra*, ♂. No. 128 in list. Like 4. There is a streak of bright fulvous colour on the black apex of the cell. This specimen looked different from the type on the wing.
6. At edge of forest (E), Aug. 21, 1912. Form *terra*, ♂, variety. No. 220 on list. The black bar is broken through at the inner end.
7. In forest (A), Feb. 27, 1912. Form *terra*, ♂, variety. No. 33 on list. Like 6 but process has been carried farther.
8. In forest (C), April 13, 1912. Form *terra*, ♂, variety. No. 80 on list. Black bar broken through in its middle, and a well-marked fulvous spot in the black area of the cell.